Amendments to the Claims

This listing of claims supersedes all prior listing of claims.

1. (previously presented) In an electrical device generating a variable output signal, a feedback loop for adjusting the variable output signal, the feedback loop having an input for receiving an input signal, an output for outputting the variable output signal and a loop bandwidth associated with a forward path and a feedback path of the feedback loop, the feedback loop comprising:

a power amplifier coupled to the output of the feedback loop in the forward path of the feedback loop;

at least one adjustable zero element coupled between the input of the feedback loop and the power amplifier; and

at least one adjustable pole element coupled between the input of the feedback loop and the power amplifier, wherein the at least one adjustable zero element and at least one adjustable pole element are operable to change the loop bandwidth of the feedback loop.

2. (previously presented) The feedback loop of claim 1 wherein the at least one adjustable zero element is in the forward path of the feedback loop.

3. (cancelled)

4. (previously presented) The feedback loop of claim 1 wherein the at least one adjustable pole element is in the forward path of the feedback loop.

5. (previously presented) The feedback loop of claim 4 wherein the at least one adjustable zero element is in the forward path of the feedback loop, the feedback loop further comprising:

a mixer in the forward path of the feedback loop coupled between the input of the feedback loop and the power amplifier; and

a mixer in the feedback path of the feedback loop coupled between the output of the feedback loop and the input of the feedback loop.

6. (previously presented) The feedback loop of claim 5, wherein:

the feedback loop is used as part of a radio transmitter.

7. (previously presented) The feedback loop of claim 1 wherein the feedback loop is a cartesian feedback loop.

8. (previously presented) The feedback loop of claim 1 wherein the adjustable pole element is a circuit comprising a plurality of elements having impedance that can be selectively coupled to the other elements of the circuit.

9. (previously presented) The feedback loop of claim 1 wherein the at least one adjustable pole element and the at least one adjustable zero element are substantially contained within an integrated circuit.

10. (cancelled)

11. (previously presented) The feedback loop of claim 1 wherein the at least one adjustable pole element comprises two adjustable pole elements.

12 (previously presented) The feedback loop of claim 1 in which the adjustable zero element comprises:

an adjustable first amplifier that amplifies an input signal to the adjustable zero element to create a first amplified signal;

a second amplifier that amplifies the input signal to the adjustable zero element to create a second amplified signal;

a low pass filter that operates on the first amplified signal to create a filtered amplified signal; and

a summer to add the filtered amplified signal and the second amplified signal to create an output signal to the adjustable zero element.

13. (currently amended) In a feedback loop comprising an input for receiving an input signal, an output for outputting a variable output signal, a power amplifier coupled to the output of the feedback loop in a forward path of the feedback loop, at least one adjustable zero element coupled between the input of the feedback loop and the power amplifier in the forward path of the feedback loop, and at least one adjustable pole element coupled between the input of the feedback loop and the power amplifier in the forward path of the feedback loop, ~~the feedback loop further having a loop and a closed loop frequency response associated with the forward path and a feedback path of the feedback loop, the loop frequency response having at least one pole and at least one zero and the closed loop frequency response being characterized by a closed loop bandwidth,~~ a method comprising the steps of:

generating, in the feedback loop, a loop frequency response having at least one pole and at least one zero, and a closed loop frequency response being characterized by a closed loop bandwidth; and

moving a pole in the loop frequency response using the at least one adjustable pole element yielding a change in the closed loop frequency response.

14. (original) The method of claim 13 wherein the step of moving a pole is accomplished by switching among a plurality of elements having different impedances.

15. (previously presented) The method of claim 13 further comprising the step of:

moving a zero in the loop frequency response using the at least one adjustable zero element yielding a change in the closed loop frequency response.

16. (original) The method of claim 15 wherein the step of moving a zero is accomplished by adjusting an amplifier with an adjustable gain.

17. (previously presented) The method of claim 13 wherein the power amplifier amplifies the input signal so that it can be transmitted over a radio channel.

18. (currently amended) An integrated circuit ~~implementing substantially all the components of a feedback loop with adjustable frequency response, the integrated circuit~~ comprising the feedback loop of Claim 1.

19. (cancelled)

20. (previously presented) A feedback loop having an input for receiving an input signal, an output for outputting a variable output signal and a loop bandwidth associated with a forward path and a feedback path of the feedback loop, the feedback loop comprising

a power amplifier coupled to the output of the feedback loop in the forward path of the feedback loop;

at least one adjustable zero element coupled between the input of the feedback loop and the power amplifier in the forward path of the feedback loop;

at least one adjustable pole element coupled between the input of the feedback loop and the power amplifier in the forward path of the feedback loop;

a first mixer in the forward path of the feedback loop coupled between the input of the feedback loop and the power amplifier; and

a second mixer in the feedback path of the feedback loop coupled between the output of the feedback loop and the input of the feedback loop, wherein the at least one adjustable zero element and at least one adjustable pole element are operable to change the loop bandwidth of the feedback loop.

21. (cancelled)

22. (previously presented) In a feedback loop comprising an input for receiving an input signal, an output for outputting a variable output signal, a power amplifier coupled to the output of the feedback loop in a forward path of the feedback loop, at least one adjustable zero element coupled between the input of the feedback loop and the power amplifier in the forward path of the feedback loop, and at least one adjustable pole element coupled between the input of the feedback loop and the power amplifier in the forward path of the feedback loop, the feedback loop further having a loop and a closed loop frequency response associated with the forward path and a feedback path of the feedback loop, the loop frequency response having at least one pole and at least one zero and the closed loop frequency response being characterized by a closed loop bandwidth, a method comprising the steps of:

moving a pole in the loop frequency response using the at least one adjustable pole element yielding a change in the closed loop frequency response; and

moving a zero in the loop frequency response using the at least one adjustable zero element yielding a change in the closed loop frequency response.